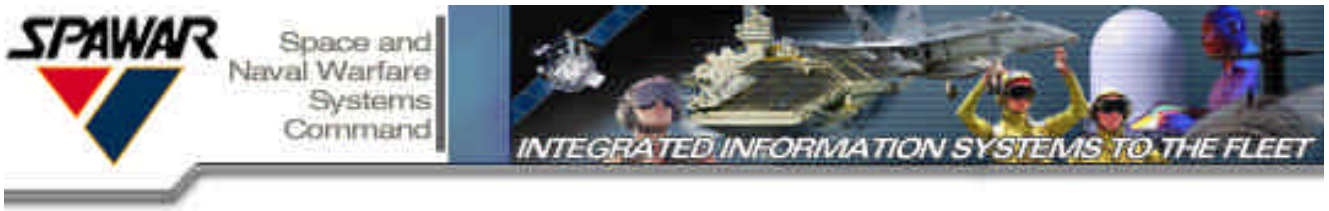


Space and Naval Warfare Systems Command: Aligned for the Future

Commander, Space & Naval Warfare Systems Command

The Space and Naval Warfare Systems Command (SPAWAR) is one of the Department of the Navy's three major acquisition commands. Its mission is to enable knowledge superiority for the warfighter through the development, acquisition and life cycle support of effective, capable and integrated C4ISR (Command, Control, Communications, Computers Intelligence, Surveillance and Reconnaissance), IT (Information Technology), and Space Systems. We strive to deliver these systems as an integrated end-to-end operational capability for the fleet.

"Joint Vision 2020" focuses on Information Technology as pivotal to attaining and maintaining warfighting knowledge and decision superiority. SPAWAR provides the Information Technology that enables the warfighter of today and tomorrow to dominate the information battlespace. Interoperability among the services, coalition partners, government and non-government organizations is now and will continue to be imperative. Guided by the vision of the Naval Warfare Doctrine Command and the Chief of Naval Operation's Strategic Studies Group, advanced network-centric operational concepts are emerging that will rely on integrated, networked C4ISR infrastructure, applications and sensor systems.

SPAWAR provides C4ISR, IT, and space infrastructure, applications and sensor system capabilities that are critical to the national interest. The demand for these capabilities is growing exponentially. SPAWAR supplies the Fleet and our other customers with integrated, adaptable and scalable systems that have high reliability and low maintenance requirements. More than ever, SPAWAR relies on Fleet customers to project their needs and provide input on ways to shape emerging technologies for future use.

By developing and delivering battlespace information collection, communication, processing, and management systems, SPAWAR plays a critical support role in the execution of national military strategies. SPAWAR and its industry partners continue to lead the way in the development, acquisition, and support of these vital systems, and SPAWAR continually improves the process by which the best systems are delivered and supported in a timely, coordinated, cohesive manner.

In keeping with this mission and long-range vision, SPAWAR and its Echelon III commands pursue three broad strategic goals:

DEVELOPMENT - We continuously communicate with the Fleet to plan for future C4ISR, IT, and space capability. With the Fleet and our industry partners, SPAWAR is providing an Information Technology architecture for the future, through the coordinated use of assets like the At Sea Battle Lab (USS Coronado), Fleet Battle Experiments and continued innovative research and development efforts at focal points like SPAWAR System Center San Diego.
ACQUISITION - We streamline and consolidate the acquisition process to deliver integrated end-to-end capability to the Fleet and our other customers. By leveraging the efforts across programs, we are integrating our product line to provide seamless solutions for the Fleet at reduced cost.
LIFE CYCLE SUPPORT - Developing and installing C4ISR and IT systems is only half the job. To provide sustained capability, SPAWAR, in conjunction with the Chief of Education and Training (CNET), trains the operator. SPAWAR provides continuous life cycle support using refresher training, technical assistance and a 24/7 SPAWAR help desk.

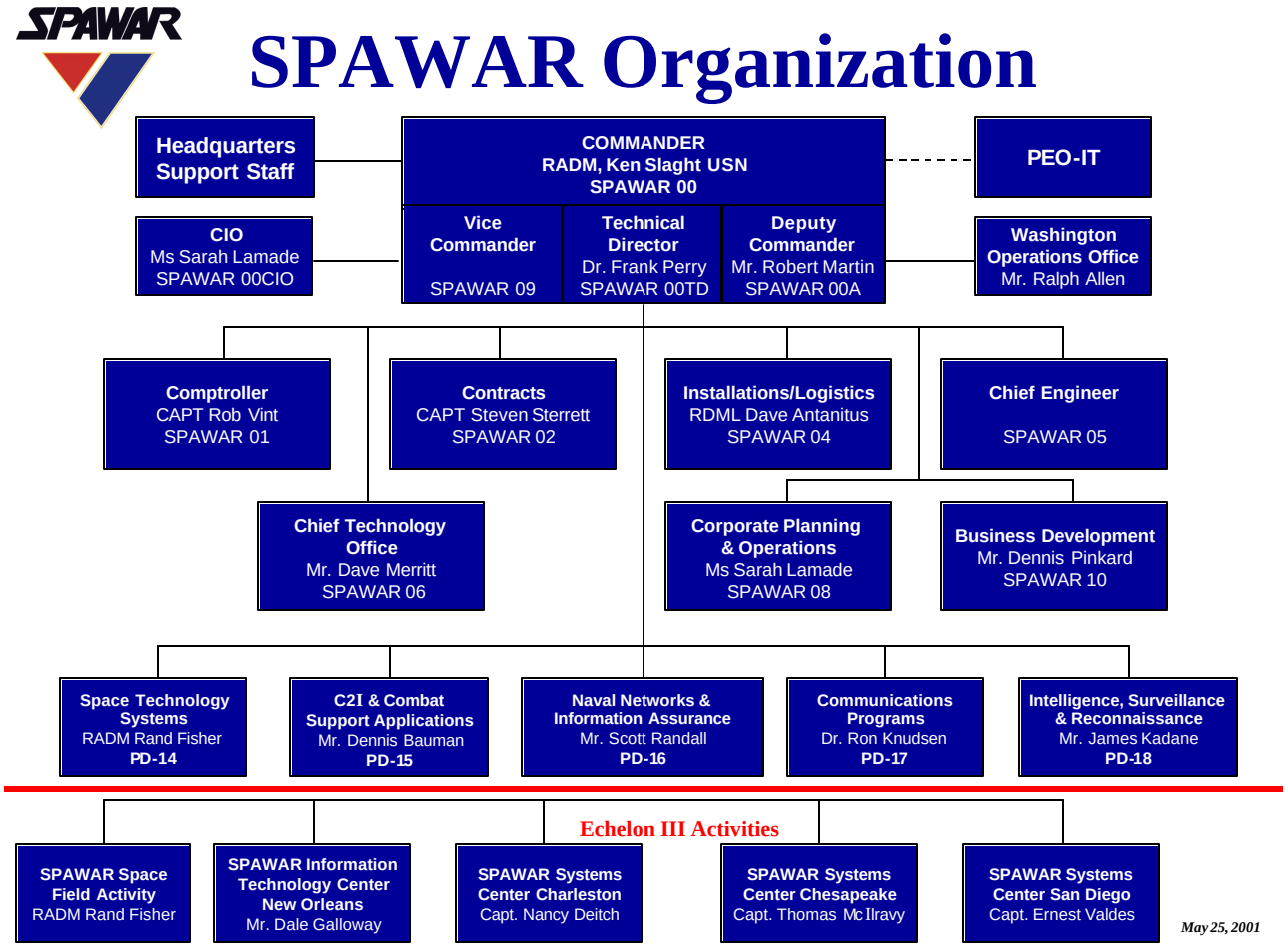
A Foundation of Cutting Edge Technology

On May 1, 1966, a fledgling command was established to provide the U.S. Navy and Marine Corps operating forces with the best electronic systems, equipment and Command, Control and Communications (C3). The Naval Electronic Systems Command (NAVELEX) was one of five systems commands placed under the cognizance of the Naval Material Command (NAVMAT).

For 19 years, NAVELEX engineers, scientists, technicians and support personnel worked to meet the demands of their mission. As the 21st century approached, the Navy Department reevaluated to maximize its strengths and a major reorganization took

place. The Navy Material Command was disestablished and in May 1985, NAVELEX became Space and Naval Warfare Systems Command (SPAWAR) - an echelon 2 command under the Chief of Naval Operations. With the new name came new responsibilities. In addition to meeting the Fleet's C3 requirements, emphasis was placed on undersea surveillance and space systems programs.

With the mission change, SPAWAR became manager of many diverse engineering centers and laboratories that are geographically dispersed throughout the country. On October 1, 1997, SPAWAR officially relocated its headquarters to San Diego and consolidated its operations to three Systems Centers operating in four major locations, while maintaining a global presence.



Today, SPAWAR consists of the Commander/Headquarters staff with five program directorates, three Systems Centers (located in Charleston, Chesapeake, and San Diego), the SPAWAR Information Technology Center (New Orleans) and the SPAWAR Space Field Activity (SSFA-D.C.). SPAWAR has over 8,000 government and military employees and receives over $4.5 billion in fiscal resources from all sources. SPAWAR works in partnership with NAVSEA, NAVAIR and industry to provide our nation's military with cutting edge, integrated C4ISR, IT and space systems for the 21st century.

Echelon III Team Members

With the expertise provided by SPAWAR's System Centers in Charleston, Chesapeake and San Diego, SPAWAR provides integrated solutions — from solving complex shipboard C4ISR problems, to completely refitting a mobile communications van with the most current technologies and shipping the van anywhere in the world. Our Systems Centers focus on teaching, training, developing, testing, and repairing field systems. SPAWAR focuses on the Fleet customer and works to ensure new capabilities are provided to the units likely to need them the most – Numbered Fleet Commanders, deploying CV/CVN battle groups and amphibious ready groups.

The SPAWAR Space Field Activity, located in Washington D.C., manages the Navy's interest and programs in space sensors and satellite communications. Working closely with the other DoD space commands and the National Reconnaissance Office, SSFA designs the architecture for Navy space systems and manages the complex requirements of extremely diverse joint and coalition requirements.

SPAWAR's newest echelon III command, the SPAWAR Information Technology Center (New Orleans), joined SPAWAR from COMNAVRESFOR on 01 October 2000. Previously known as the Naval Reserve Information Systems Office (NRISO), SPAWAR ITC is responsible for the development, life cycle support and operational control of the Navy Manpower and Personnel Information Systems and Naval Reserve Information Systems. They are also the principle support activity responsible for the Navy Standards Integrated Personnel System (NSIPS) and the Defense Integrated Military Human Resources System (DMHRS).

IT-21: Information Superiority

The concepts of IT-21 (Information Technology for the Twenty First Century) started as a Fleet initiative to take advantage of the rapidly growing availability of high-speed information networks emerging from the commercial sector. SPAWAR has been fielding systems in support of this initiative since 1998. Sailors and Marines can now utilize new collaboration and planning tools tied together on an integrated network spanning the Fleet. In less than 3 years, 69% of the surface Navy has received IT-21 capability.

IT-21 has changed the way the Naval Services prepare for, plan and executed warfare. The most recent trial under fire came with NATO operation ALLIED FORCE in March of 1999. Sailors and Marines had been perfecting their abilities to collaborate across the sea-based network in previous combat operations. Operation ALLIED FORCE really put this new capability to the test. Using collaborative tools such as chat, email, video teleconferencing, and secure web pages, Sailors and Marines were able to accelerate the speed of decision like never before. No longer did the next tactical decision wait for a naval message, phone line or open circuit. Whether planning Tomahawk missions or developing the next air sortie, Sailors and Marines could overcome challenges immediately, before they became problems. IT-21 connected the Fleet in ways never imagined and changed the face of modern warfare.

Navy / Marine Corps Intranet: The Other Half of the Equation

The Navy / Marine Corps Intranet (NMCI) is the next critical step in the Department of the Navy's drive to gain and maintain information superiority. NMCI is a commercial services contract providing a single assured network linking all shore commands together, while tying seamlessly into the established sea-based IT-21 and Marine Corps Tactical Network. NMCI will replace services currently provided by numerous costly, independent local networks with a single technologically superior and coherent department-wide capability. SPAWAR will administer the commercial contract and purchase IT services for other commands. NMCI will increase interoperability by establishing a common, end-to-end network so that commands can share information with ease. It will provide access to the right information at the right time to meet the data, video and voice service needs of Sailors, Marines, and civilian personnel. NMCI will enable a revolution in how we do business by providing the infrastructure needed for innovation and modernization of business practices.

In the first contract of its type, the Navy department is not buying hardware and software; the department is buying a service that will be paid for just as we pay for telephone or utility service. The Department of the Navy will rely on the IT industry experts to build, maintain and upgrade this intranet. The contract, valued at over $6B over the first five years, is estimated to save over $2B in the same time period through the consolidation of resources and volume purchases.

Transmitters, Antenna and Receivers - Tying It All Together

Not as readily visible to the Fleet user as individual displays and keyboards is the string of transmitters, antenna and receivers employing agile software to manage the limited bandwidth available. Without this equipment operating at frequencies across the spectrum, the most critical information wouldn't make it past the lifelines. SPAWAR is breaking new ground with agile antennas that are able to transmit a wide range of frequencies, reducing the overall number of antennas required while simultaneously reducing topside weight and RADAR cross section. SPAWAR has also started procurement of a new software programmable radio. The Digital Modular Radio (DMR) will replace dozens of existing radios with a single unit and eliminate the need for manually patching cables.

ISR and Space Systems

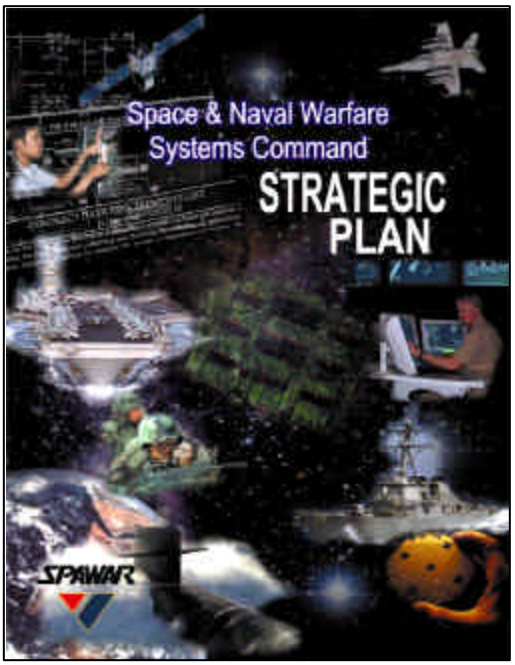
From the bottom of the oceans' seabeds to the edges of space, SPAWAR provides an integrated web of sensors and communications systems that supply the warfighter with the information superiority needed to win. Ten years ago many sensor systems were clouded in secrecy and developed in closely guarded government labs. Today SPAWAR leverages the IT and computing explosion in the commercial sector to dramatically increase system capability while partnering with industry to develop cost-effective solutions. Whether installing hydrophone arrays on the ocean floor (SOSUS - SOund SUrveillance System) or providing extremely sensitive towed-array sensor systems (SURTASS - Surface Towed Array Sensor System), SPAWAR is closely partnered with industry to provide cutting-edge technology with the benefit of years of ISR experience.

While the military maintains a vast constellation of communications satellites, SPAWAR is investigating commercial solutions to support future requirements. Whether continuing with a primarily government system or off-loading a portion of the satellite requirements to the commercial sector, SPAWAR is developing, with industry, a communications architecture that carefully balances warfighter requirements, fiscal constraints and commercial capability.

Aligning for the Future: Integrated Product Line

The traditional acquisition process encourages the formation of stove-piped systems because the funding and support for one program is independent of the development and funding of another. But in the IT battlespace, it is imperative that systems are integrated and delivered in a cohesive manner providing our customers with a single solution for multiple challenges. By doing this, we will ensure our customers receive an integrated product line rather than a series of independent systems. We call this process *Horizontal Integration* and our organizational structure drives program managers to horizontally cut across the entire organization to build in commonality and compatibility.

This process drives not only software and hardware development, but flows down to integrated installations and training. SPAWAR's Chief Engineer is responsible for the systems engineering, integration and testing of all products; while the Director, Installations and Logistics interfaces with the Fleet to coordinate system delivery, installation schedule and provides in-service customer support. Rather than installing ten or twenty ship systems over several availabilities, SPAWAR integrates the products first then conducts one coordinated install, minimizing Fleet impact while maximizing cost savings through commonality.



Today, more and more hardware for the fleet is purchased from commercial "off the shelf" vendors. The key is to integrate this technology from diverse sources and adapt it to a warfighting environment with full support across the Fleet. SPAWAR leverages the best emerging technologies and reaches out to develop solutions, interacting with other military services, allied forces and industry. In this changing environment, effective partnership with commercial industry becomes even more critical. SPAWAR works closely with its industry partners, ensuring the Navy receives what it expects. The technical expertise industry brings to this relationship helps our nation's military prepare for the future.

The Navy's C41SR, IT and Space system needs are unique. SPAWAR is the Navy organization with the experience, technical expertise, cross-platform knowledge and dedication to bring tomorrow's technology to the Fleet today in support of the 21st Century warfighter.